WHAT IS CLAIMED IS:

1. A method for designing a broad band wire grid polarizing beamsplitter, the wire grid polarizing beamsplitter comprising a dielectric substrate with composite wires each having a stratified intra-wire substructure of multiple metal layers and alternating dielectric layers; the method comprising:

defining a desired range of incidence angles and a desired spectral band of the incident light;

defining the desired polarization contrast ratios within said spectral band for both the reflected polarized light and the transmitted polarized light;

defining the desired minimum acceptable light efficiencies for both said reflected polarized light and said transmitted polarized light;

selecting initial design parameters for the wire grid pitch and the width of the individual composite wires;

selecting initial design parameters for said stratified intra-wire substructure of multiple metal layers and of alternating dielectric layers, which includes the number of said metal layers, the number of said alternating dielectric layers, the periodicity or aperiodicity of the arrangement of the layers within the intra-wire substructure, and the thickness of the individual metal and dielectric layers;

selecting the materials which comprise the dielectric substrate, the individual metal layers, and the individual dielectric layers; and

varying the design parameters in a selective and iterative manner until the desired performance for both the reflected polarized light and the transmitted polarized light is obtained.

2. A method for making a wire grid polarizer for the visible spectrum, the method comprising:

providing a transparent substrate with a first surface and a refractive index;

forming an array of parallel metal elements with intervening grooves on the first surface of the substrate;

depositing a dielectric layer of an optically transparent material on top of the parallel metal elements;

depositing further alternate layers of parallel metal elements and dielectric layers to create stacks which comprises an array of composite wires; and

etching away the dielectric optically transparent materials in the intervening grooves between the stacks that comprise the composite wires.

3. A method as in claim 2 where planarization is employed after the deposition of each dielectric layer.

4. A method as in claim 2 wherein the final stack layer is a dielectric material.

5. A method as in claim 4 wherein a mask is patterned on the final layer prior to etching the dielectric optical material.

6. A method as in claim 5 wherein the mask is removed following the removal of the dielectric optical materials that had collected in the intervening grooves.

7. A method as in claim 2 wherein the dielectric is removed from the grooves following each metal deposition.

8. A method for making a wire grid polarizer for the visible spectrum, the method comprising:

providing a transparent substrate with a first surface and a refractive index;

depositing a first dielectric layer of an optically transparent material on top of the first surface;

forming an array of parallel metal elements with intervening grooves on the first dielectric layer;

depositing a second dielectric layer on top of the parallel metal elements;

depositing further alternating layers of parallel metal elements and dielectric optical materials to create stacks which comprise an array of composite wires; and

etching away the dielectric in the intervening grooves between the stacks that comprise the composite wires.

9. A method as in claim 8 wherein the final stack layer is a dielectric material.

10. A method as in claim 9 wherein a mask is patterned on the final layer prior to etching the dielectric optical material.

11. A method as in claim 10 wherein the mask is removed following the removal of the dielectric material in the intervening grooves.

12. A method as in claim 8 wherein the dielectric is removed from the grooves after each metal layer is deposited.

13. A method for making a wire grid polarizer for the visible spectrum, the method comprising:

providing a transparent substrate with a first surface and a refractive index;

forming an array of parallel metal elements and intervening grooves on the first surface of the substrate;

depositing a dielectric layer on top of the parallel metal elements and in the intervening grooves;

depositing further alternating layers of parallel metal elements and dielectric optical materials to create stacks that comprise the composite wires and to create intervening grooves filled with dielectric material.

14. A method as in claim 13 wherein planarization follows the deposition of each dielectric layer.

15. A method for making a wire grid polarizer for the visible spectrum, the method comprising:

providing a transparent substrate with a first surface and a refractive index;

depositing a dielectric layer on top of the first surface;

forming an array of parallel metal elements and intervening grooves on the dielectric layer;

depositing a dielectric layer on top of the parallel metal elements and in the intervening grooves; and

depositing further alternating layers of parallel metal elements and dielectric to create stacks that comprise the composite wires and to create intervening grooves filled with dielectric optical material.

16. A method as in claim 15 wherein planarization follows the deposition of each dielectric layer.